



National Voluntary Laboratory Accreditation Program



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

US Army Radiation Standards Laboratory / APSL Nucleonics Section

Army Primary Standards Laboratory Directorate

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CALIBRATION LABORATORIES

NVLAP LAB CODE 200715-0

Scope Revised: 2006-10-10

NVLAP Code: 20/A01

ANSI/NCSL Z540-1-1994; Part 1

Compliant

IONIZING RADIATION

NVLAP Code: 20/I01

Dosimetry of X-Rays, Gamma Rays, and Electrons

Calibration of Survey Instruments

<i>Calibration Category</i>	<i>Radiation Type</i>	<i>Emission Rate Range</i>	<i>Reference Field Uncertainty (\pm) in %</i> ^{notes 1,2}
Alpha	^{238}Pu	2×10^6 counts / min	2.5
<i>Calibration Category</i>	<i>Radiation Type</i>	<i>Exposure Rate Range</i> ^{note 3}	<i>Reference Field Uncertainty (\pm) in %</i> ^{notes 1,2}
Gamma	^{137}Cs	0.05 mR/hr to 5000 R/hr	3.0
X-Ray	M30	20 to 200 R/hr	3.0
	M60	1.5 to 300 R/hr	3.0
	M100	1.5 to 300 R/hr	3.0
	M150	2.5 to 400 R/hr	3.0
	H150	0.3 to 15 R/hr	3.0
	S75	50 to 500 R/hr	3.0
	HK10	15 to 100 R/hr	3.0

2006-07-01 through 2007-06-30

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For the National Institute of Standards and Technology



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HK20	25 to 250 R/hr	3.0
HK30	20 to 200 R/hr	3.0
HK60	4.0 to 150 R/hr	3.0
HK100	4.0 to 150 R/hr	3.0
HK200	10 to 400 R/hr	3.0
HK250	15 to 500 R/hr	3.0
HK280	15 to 500 R/hr	3.0
HK300	15 to 500 R/hr	3.0
LK10	0.15 to 0.8 R/hr	3.0
LK20	0.4 to 2.5 R/hr	3.0
LK30	0.04 to 0.4 R/hr	3.0
LK35	0.075 to 1.0 R/hr	3.0
LK55	0.015 to 0.5 R/hr	3.0
LK70	0.04 to 0.4 R/hr	3.0
LK100	0.01 to 0.4 R/hr	3.0
LK125	0.0008 to 0.4 R/hr	3.0
LK170	0.0005 to 0.4 R/hr	3.0
LK210	0.005 to 0.25 R/hr	3.0
LK240	0.0015 to 0.3 R/hr	3.0
NS10	1.5 to 10 R/hr	3.0
NS15	1.0 to 8.0 R/hr	3.0
NS20	1.5 to 15 R/hr	3.0
NS25	1.5 to 15 R/hr	3.0
NS30	1.0 to 10 R/hr	3.0
NS40	0.1 to 4.0 R/hr	3.0
NS60	0.2 to 8.0 R/hr	3.0
NS80	0.5 to 5.0 R/hr	3.0
NS100	0.04 to 2.0 R/hr	3.0
NS120	0.2 to 2.0 R/hr	3.0
NS150	0.3 to 10 R/hr	3.0
NS200	0.2 to 5.0 R/hr	3.0
NS250	0.15 to 5.0 R/hr	3.0
NS300	0.25 to 5.0 R/hr	3.0
WS60	0.5 to 20 R/hr	3.0

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WS80	1.0 to 40 R/hr	3.0
WS110	0.75 to 25 R/hr	3.0
WS150	1.5 to 50 R/hr	3.0
WS200	2.0 to 100 R/hr	3.0
WS250	2.5 to 100 R/hr	3.0
WS300	3.0 to 150 R/hr	3.0

Irradiation of Personnel Dosimeters

<i>Calibration Category</i>	<i>Radiation Type</i>	<i>Nominal Range</i>	<i>Reference Field Uncertainty (\pm) in %</i> <small>notes 1,2</small>
Gamma	^{137}Cs	>0.03	3.0
X-Ray	M30	>0.03	3.0
	M60	>0.03	3.0
	M100	>0.03	3.0
	M150	>0.03	3.0
	H150	>0.03	3.0
	S75	>0.03	3.0
	HK10	>0.03	3.0
	HK20	>0.03	3.0
	HK30	>0.03	3.0
	HK60	>0.03	3.0
	HK100	>0.03	3.0
	HK200	>0.03	3.0
	HK280	>0.03	3.0
	HK300	>0.03	3.0
	LK10	>0.03	3.0
	LK20	>0.03	3.0
	LK30	>0.03	3.0
	LK35	>0.03	3.0
	LK55	>0.03	3.0
	LK70	>0.03	3.0
	LK100	>0.03	3.0
	LK125	>0.03	3.0

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LK170	>0.03	3.0
LK210	>0.03	3.0
LK240	>0.03	3.0
NS10	>0.03	3.0
NS15	>0.03	3.0
NS20	>0.03	3.0
NS25	>0.03	3.0
NS30	>0.03	3.0
NS40	>0.03	3.0
NS60	>0.03	3.0
NS80	>0.03	3.0
NS100	>0.03	3.0
NS120	>0.03	3.0
NS150	>0.03	3.0
NS200	>0.03	3.0
NS250	>0.03	3.0
NS300	>0.03	3.0
WS60	>0.03	3.0
WS80	>0.03	3.0
WS110	>0.03	3.0
WS150	>0.03	3.0
WS200	>0.03	3.0
WS250	>0.03	3.0
WS300	>0.03	3.0

Irradiation of Thermoluminescent Dosimeters and Electronic Dosimeters

Calibration Category	Radiation Source Type	Absorbed Dose Rate	Reference Field Uncertainty (\pm) in % <small>notes 1,2</small>
Beta	^{90}SrY	(0.6 to 25) $\mu\text{Gy/sec}$	2.5
	^{85}Kr	(0.6 to 25) $\mu\text{Gy/sec}$	2.5
	^{147}Pm	(0.6 to 25) $\mu\text{Gy/sec}$	2.5

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Radioactive Sources

Radionuclide Source Calibration

<i>Radioisotope</i>	<i>Nominal Range in Bq</i> ^{note 3}	<i>Best Uncertainty (±) in %</i> ^{notes 1,2}
^{238}Pu	to 10^6	2.5
^{239}Pu	to 10^6	2.5
^{241}Am	to 10^6	2.5

Gamma / X-Ray Source Calibration for Air Kerma Rate

<i>Radioisotope / Beam Code</i>	<i>Range</i> ^{note 3}	<i>Best Uncertainty</i> (\pm) in % ^{notes 1,2}
^{137}Cs ^{note 4}	0.05 mR/hr to 5000 R/hr	3.0
^{137}Cs ^{notes 4 and 5}	0.1 mR/hr to 600 R/hr	4.5
^{60}Co	0.05 mR/hr to 1000 R/hr	3.0

NIST Beam Codes

ISO Beam Codes

1. Represents an expanded uncertainty using a coverage factor, $k = 2$, at an approximate level of confidence of 95 %.
 2. Uncertainties are valid for nominal intensity range listed.
 3. For calibration outside of nominal intensity range shown, uncertainties would be determined commensurate with parameters of the reference field calibration.
 4. This capability includes off-site calibration service, as limited by influences of operating environment.
 5. Enclosed calibration range.

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